WEIMIN SUN

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Marital Status: Married
Citizenship: U.S.A.

EDUCATION

Pharmacology and Toxicology, University of California, Davis. 09/89 - 07/94
Ph.D., September 1994.
Advisor: Dr. Jerold A. Last

Basic Medicine, Shanghai Medical University, 09/82 - 06/88
MD, June 1988

PROFESSIONAL EXPERIENCE

Scientific Director, Molecular Genetics Department, Quest Diagnostics Incorporated, 2002-present

1. Responsible for overall design, performance and maintenance, as well as technical and clinical validation of all testing in Molecular Genetics
2. Manage R&D portfolio design/planning, staffs and projects
3. Review clinical information and laboratory results for various genetic tests to provide final diagnosis and interpretations
4. Provide consultation to physicians and genetic counselors on genetic testing

Research and Development Manager, Molecular Genetics Department, Quest Diagnostics Incorporated, 2001

1. Manage R&D staffs (senior scientists and research associates) and projects
2. Review clinical information and laboratory results for various genetic tests to provide final diagnosis and interpretations
3. Provide consultation to physicians and genetic counselors on genetic testing
4. Participate in QA&QC programs

Associate Scientific Director of Molecular Genetics Department, Quest Diagnostics Incorporated, 2000

1. Review clinical information and laboratory results for various genetic tests to provide final diagnosis and interpretations
2. Provide consultation to physicians and genetic counselors on genetic testing
3. Manage R&D staffs and projects
4. Participate in QA&QC programs

Manager of Diagnostic Molecular Pathology Laboratory, UC Irvine, 1999 - 2000

1. Set up the molecular diagnostics laboratory, including purchasing equipment and supplies, designing laboratory layout and developing/implementing quality control program
2. Developed and validated molecular diagnostic assays, including thrombophilia variant analysis (Factor V Leiden, prothrombin and MTHFR), Fragile X syndrome, HFE genotype analysis (C282Y and H63D) and parentage/genetic identity testing
3. Managed the laboratory according to CLIA/CAP guideline, troubleshot technical problems and trained technologist and participated in proficiency/interlab exchange testing
4. Written standard operational procedures of the laboratory and pamphlets for test information
5. Designed and developed a PC database for general laboratory management

Director of Molecular Genetics Laboratory, Genetics Center, 1998

1. Set up the molecular diagnostics laboratory, including purchasing equipment and supplies, designing laboratory layout, developing quality assurance protocols and training technologists.

2. Developed and validated molecular diagnostic assays, including cystic fibrosis (analysis for 33 mutations and 1 polymorphism), Fragile X syndrome, Ashkenazi Jewish genetic diseases panel (Canavan, CF, Gaucher and Tay-Sachs), genetic identity tests, myotonic dystrophy, BCR-ABL translocation (RNA-based), Prader-Willi/Angelman syndromes (methylation PCR) and sex chromosome analysis.
3. Supervised daily laboratory operation, troubleshot technical problems, reviewed and signed-out diagnostic cases.
4. Developed report forms on molecular genetic tests; given presentations and lectures to clinicians and written newsletter articles on molecular tests.

Postdoctoral Work, UCLA, 1994 – 1997

1. Identified the molecular defect in aryl hydrocarbon receptor protein expressed by a mutant strain of a mouse hepatoma cell line. Characterized the effect of a single point mutation in the coding region of the mutant protein on its functionality in protein (ARNT)-heterodimerization, DNA binding and transactivation.
2. Studied possible human genetic polymorphisms in inducibility of cytochrome *P-450IA1* (*Cyp1A1*) gene by using peripheral blood mononuclear cells collected from healthy volunteers and placenta tissue. Developed competitive rt-PCR assay to accurately quantify the expression of *CYP1A1* gene as well as its regulators. Developed methodology to amplify and clone full-length coding cDNA of the relevant genes for *in vitro* expression and functional analysis.
3. Applied representational difference analysis (RDA) technique to study the tumor-promotion activity of TCDD by isolating and analyzing the affected genes.
4. Received training in applying DNA technology to clinical diagnostics. Developed a simple PCR-based procedure to test for Familial Haemochromatosis and a RNA-based assay to detect chromosome translocation.

Graduate Study, UC Davis, 1989 - 1994

1. Studied the acute effects of airborne toxicants (ozone and tobacco smoke) on human airway epithelial cells *in vitro*. Defined cytotoxicities of air pollutants with various viability assays. Analyzed changes in protein synthesis patterns in injured cells. Characterized the induced expression of a 45kDa protein by ozone and environmental tobacco smoke (ETS). Generated and purified internal peptides from the 45kDa protein for N-terminal micro-sequencing analysis.
2. Tested the importance of inflammation in enhancing the direct toxic effects of ozone and nitrogen dioxide mixture to rat lungs *in vivo*.
3. Teaching Assistant (1992) for Department of Environmental Toxicology in *Air Pollution and Inhalation Toxicology*. Participated in designing and grading homework and exam questions, helped students during office hours, coordinated guest lecturers and provided demonstration facilities.

Research Assistant, Shanghai Medical University, 1982 - 1988

Used immunohistochemistry methods to study the distribution and expression of desmin in human fetal organs and tissues, as well as poorly differentiated sarcomas; Professor Yue-er Zhang, Department of Pathology

PUBLICATIONS

Last, J.A., Wu, R., Jin, C., Gelzleichter, T., **Sun, W.**, Armstrong, L.C. (1990) Particle-cell interactions – lung fibrogenesis. Journal of Aerosol Medicine 3(S1): S61-S74

Sun, W., Wu, R., and Last, J.A. (1994) Coordinated Expression of 45 kDa Protein Synthesis and Ozone Toxicity in a Human Bronchial Epithelial Cell Line. American Journal of Respiratory Cell and Molecular Biology 10: 673-82

Sun, W. (1994) Cytotoxicity of Air Pollutants in Airway Epithelium in vitro.
(Ph.D thesis)

Last, J.A., **Sun, W.**, and Witschi, H. (1994) Ozone, NO, and NO_2: Oxidant Air Pollutants and More. Environmental Health Perspective 102: 179-84

Tarkinton, B.K., Wu, R., **Sun, W.**, Nikula, K.J, Wilson, D.W., and Last, J.A. (1994) In Vitro Exposure of Tracheobronchial Epithelial Cells and of Tracheal Explants to Ozone. Toxicology 88: 51-68

Sun, W., Wu, R., and Last, J.A. (1995) Effects of exposure to environmental tobacco smoke on a human tracheobronchial epithelial cell line. Toxicology 100: 163-74

Hankinson, O., Bacsi, S.G., Fukunaga, B.N., Kozak, K.R., McNulty, S.E., Minehart, E., Probst, M.R., Reisz-Porszasz, S., **Sun, W.**, and Zhang, J. (1995) Genetic Analysis of the Aryl Hydrocarbon Receptor Nuclear Translocator Protein (ARNT). European Journal of Drug Metabolism and Pharmacokinetics Special Issue: 31-2

Sun, W., Zhang, J., and Hankinson, O. (1997) A mutation in the aryl hydrocarbon receptor (AHR) in a cultured mammalian cell line identifies a novel region of AHR that affects DNA binding. Journal of Biological Chemistry 272(50): 31845-54

Antilla, S., Lei, X., Elovaara, E., Karjalainen, A., **Sun, W.**, Vainio, H., and Hankinson, O. (2000) An uncommon phenotype of poor inducilbility of CYP1A1 in human lung is not ascribable to polymorphisms in the *AHR*, *ARNT*, or *CYP1A1* genes. Pharmacogenetics 10: 1-11

Roth MD, Marques-Magallanes JA, Yuan M, **Sun W**, Tashkin DP, Hankinson O. (2001) Induction and Regulation of the Carcinogen-Metabolizing Enzume, CYP1A1, by Marijuana Smoke and Δ^9-Tetrahydrocannabinol. American Journal of Respiratory Cell and Molecular Biology. 24(3):339-44.

Strom, CS., Huang, S., Buller, A., Redman, J., Crossley, B., Anderson, B., Entwistle, T., and **Sun, W.** (2002) Cystic Fibrosis Screening Using the College Panel: Platform Comparison and lessons from the first 20,000 samples. Genetics in Medicine 4(4): 289-96

Strom, CS, Huang, S, Chen, C, Buller, A, Peng, M, Quan, F, Redman, R, **Sun, W**. (2003) Extensive sequencing of the Cystic Fibrosis Transmembrane Regulator gene: Assay validation and unexpected benefits of developing a comprehensive test. Genetics in Medicine, 5(1): 9-14

French C, Li C, Strom C, **Sun W**, Van Atta R, Gonzalez B, Wood M. (2004) Detection of the factor V Leiden mutation by a modified photo-cross-linking oligonucleotide hybridization assay. Clinical Chemistry 50(2):296-305. Epub 2003 Dec 04

Strom CM, Clark DD, Hantash FM, Rea L, Anderson B, Maul D, Huang D, Traul D, Chen Tubman C, Garcia R, Hess PP, Wang H, Crossley B, Woodruff E, Chen R, Killeen M, **Sun W**, Beer J, Avens H, Polisky B, Jenison RD. (2004) Direct visualization of cystic fibrosis transmembrane regulator mutations in the clinical laboratory setting. Clinical Chemistry, 50(5):836-45. Epub 2004 Mar 09.

Strom CM, Crossley B, Redman JB, Buller A, Quan F, Peng M, McGinnis M, **Sun W.** (2004) Cystic fibrosis screening: lessons learned from the first 320,000 patients. Genetics in Medicine. 6(3):136-40

Strom CM, Crossley B, Redman JB, Quan F, Buller A, McGinniss MJ, **Sun W.** (2004) Molecular screening for diseases frequent in Ashkenazi Jews: lessons learned from more than 100,000 tests performed in a commercial laboratory. Genetics in Medicine. 6(3):145-52.

Monaghan KG, Highsmith WE, Amos J, Pratt VM, Roa B, Friez M, Pike-Buchanan LL, Buyse IM, Redman JB, Strom CM, Young AL, **Sun W.** (2004) Genotype-phenotype correlation and frequency of the 3199del6 cystic fibrosis mutation among I148T carriers: results from a collaborative study. Genetics in Medicine, 6(5):421-5.

Huang D, Chen C, **Sun W**, Strom CM, Bender RA. (2004) High-throughput gene sequencing assay development for hereditary nonpolyposis colon cancer. Clinical Colorectal Cancer, 4(4):275-9

Ahmed SA, Bailey-Snow K, Highsmith WE, **Sun W**, Fenwick RG, and Mao R (2005) Nine novel germline gene variants in the RET proto-oncogene identified in twelve unrelated cases. J Mol Diagn. 7(2):283-8.

Brown NM, Pratt VM, Buller A, Pike-Buchanan L, Redman JB, **Sun W**, Chen R, Crossley B, McGinniss MJ, Quan F, and Strom CM. (2005) Detection of 677CT/1298AC "double variant" chromosomes: implications for interpretation of MTHFR genotyping results. Genetics in Medicine, 7(4):278-82

McGinniss MM, Chen C, Redman JB, Buller A, Quan F, Peng M, Giusti R, Hantash F, Huang D, **Sun, W,** and Strom C (2005) Extensive Sequencing of the CFTR gene: lessons learned form the first 157 patient samples. Human Genetics, 118: 331-8

Hantash F, Anderson B, Redman J, Buller A, McGinniss MM, Peng M, Quan F, **Sun W**, and Strom C. (2006) Novel and Recurrent Rearrangements in the CFTR Gene: Clinical and Laboratory Implications for Cystic Fibrosis Screening. Human Genetics, 119: 126-36

Hantash, F, Milunsky A, Wang Z, Anderson B, **Sun W**, Anguino A, and Strom C (2005) CFTR Gene Deletions and Duplications in Men with Congenital Bilateral Absence of Vas Deferens. Genetics in Medicine (GIM-D-05-00074, in press)

Strom CM, Janeczko RA, Anderson B, Redman J, Quan F, Buller A, McGinniss MJ, **Sun W** (2005) Technical validation of a multiplex platform to detect thirty mutations in eight genetic diseases prevalent in individuals of Ashkenazi Jewish descent. Genetics in Medicine, 7(9):633-9.

Huang D, **Sun W**, Strom CM. (2005) Sequence variations in AGTR2 are unlikely to be associated with X-linked mental retardation. American Journal of Medical Genetics. A139(3):243-4.

Hantash FM, Olson SC, Anderson B, Buller A, Chen R, Crossly B, **Sun W**, Strom CM. (2006) Rapid one-step carrier detection assay of mucolipidosis IV mutations in the Ashkenazi Jewish population. Journal of Molecular Diagnostics. 8(2):282-7.

Hantash FM, Milunsky A, Wang Z, Anderson B, **Sun W**, Anguiano A, Strom CM. (2006) A large deletion in the CFTR gene in CBAVD. Genetics in Medicine, 8(2):93-5.

Sun W, Anderson B, Redman J, Milunsky A, Buller A, McGinniss MM, Quan F, Anguino A, Huang S, Hantash F and Strom C. (2006) The CFTR 5T Variant Has a Low Penetrance in Females That is Partially Attributable to Its Haplotype. Genetics in Medicine, 8:339-45

Strom CM, Janeszco R, Quan F, Wang SB, Buller A, McGinniss M, **Sun W.** (2006) Technical validation of a tm biosciences luminex-based multiplex assay for detecting the american college of medical genetics recommended cystic fibrosis mutation panel. Journal of Molecular Diagnostics. 8(3):371-5.

ABSTACTS AND MEETING PRESENTATIONS

Sun, W., Chau, D., Krolewski, J., Selsted, M., Kagan, R., and Fenwick, R. (2000) A multiplex allele-specific amplification assay detects two common variants in the human HFE gene associated with hereditary hemochromatosis. (presented at the AMP annual meeting)

Sun, W., Buller, A, Huynh, N., Huang, S., Vu, M., Avila, L., Chen, C., Bower, B., York, S., Entwistle, T., and Strom, C. (2001) Genotype frequencies of C282Y and H63D alleles in the hemochromatosis (HFE) gene from patient samples submitted to a reference laboratory for HFE genotyping. (presented at the 2001 ASHG

annual meeting)

Anderson, B., **Sun, W.**, Buller, A., Huang, S., Hantash, F., Wang, S., Entwistle, T., Strom, CS. (2001) A novel technique to accurately assess engraftment percentages. (presented at 2002 ACMG annual meeting)

Qu, K., **Sun, W.,** Huynh, N., Strom, C., Popov, J., and Sferruzza, A. (2002) Simultaneous Detection of Methylenetetrahydrofolate Reductase Mutations C677T and A1298C by Fluorescent Restriction Fragment Length Polymorphism. (Presented at the 2002 AACC annual meeting)

Sun W, Buller A, Fenwick R, Hantash F, Huang S, Peng M, Redman J, and Strom CS (2002) Spectrum of Mutations Detected in the RET Proto-oncogene Associated with Multiple Endocrine Neoplasia Type 2 (Presented at 2002 ASHG annual meeting)

Strom C, **Sun W**, Zoleikhaeian M, Fenwick R, York M, Entwistle T. (2002) Comparison of SNP Detection Methods and Instrumentation Platforms (Presented at 2002 ASHG annual meeting)

Sun W, Redman J, Wallenstein R, McCarrier J, Lee D, Buller A, McGinniss M, Quan F, Huang S, and Strom C. (2003) Comprehensive Sequence Analysis Ruled out Disease Association with the CFTR Gene in a Family with Atypical CF Presentations (Presented at 2003 ASHG annual meeting)

Anderson B, **Sun W**, Redman J, Buller A, McGinniss M, Quan F, and Strom C (2004) CFTR Gene Haplotype Determines the Phenotype Associated with the 5T Variant (Presented at 2004 ASHG annual meeting)

Sun W, Potts S, Peng M, Buller A, McGinniss M, Quan F, Taylor J, and Strom C (2005) Novel Mutations and Variants Identified in the MECP2 Gene (Presented at 2005 ASHG annual meeting)

(Only presentations with my being a 1st or 2nd author are included)

PROFESSIONAL BOARD CERTIFICATION

American Board of Medical Genetics (Clinical Molecular Genetics,)
New York State Certification of Qualification for Laboratory Director (DNA)
Clinical Genetic Molecular Biologist by the State of California
Clinical Genetic Molecular Biologist Scientist by the State of California
Clinical Laboratory Scientist (Molecular Biology) by National Certification Agency (NCA)

HONORS

- Regents Fellowship, UCDavis, 1990-1991
- Nonresident Tuition Fellowship, UCDavis, 1989, 1991-1993
- GSA Travel Grant, UCDavis, 1993
- Research Training Grant Fellowship, American Lung Association, 1995-1996
- Intercampus Medical Genetics Training Grant, NIH, 1996 (Jan.) – 1997 (Dec.)

PROFESSIONAL AFFILIATIONS

American Society of Human Genetics (ASHG)
Association for Molecular Pathology (AMP)
American Association for the Advancement of Science (AAAS)
Phi Sigma Biological Honor Society (elected and declined)

REFERENCES

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